

**Brief Title:** Chinese Medicine Treat for Hypertensive Renal Injury (CHAIR)

**Official Title:** Qianyangyuyin Formula Prevent and Treat for Early Renal Injury in Hypertensive Patients

**Sponsor:** Jiangsu Province Hospital of Chinese Medicine

**Study Purpose:** This study evaluates whether the traditional chinese medicine (Qianyangyuyin formula) could prevent and treat early renal injury in patients with hypertension and microalbuminuria (defined as a urinary albumin to creatinine ratio between 30 and 300 mg/g) based on standard antihypertensive treatment.

**Study design:** Randomized, multi-center, placebo-controlled parallel trial.

**Sample size:** 520. Three centers, and sample size ratio of experimental group and control group is 1:1.

**Study medicine:** Standard antihypertensive drugs, Losartan potassium (Cozzar) and Calcium Channel Blockers (CCBs, if necessary); Qianyangyuyin..

**Inclusion Criteria:** 1. Subject is between 35 and 55 years old; 2. Subject has primary hypertension (grades 2-3); 3. Subject has microalbuminuria [defined as a urinary albumin/creatinine ratio (UACR) between 30 and 300mg/g, and a eGFR at least 60ml/(min·1.73m<sup>2</sup>)]; 4. Subject has ascendant hyperactivity of liver Yang or Yin deficiency in TCM syndrome; 5. Subject voluntarily participates in the trial and signs informed consent.

**Exclusion Criteria:** 1. Subject has secondary hypertension; 2. Subject with pregnancy or lactating; Subject and his/her spouse have fertility requirements or are unable to contraction during the study period and within three months after the end of the study; 3. Subject has serious life-threatening diseases, such as acute myocardial infarction, stroke, heart failure (NYHA IV), and malignant arrhythmia; 4. Subject's liver function (AST or ALT) is 2 times greater than normal value; 5. Subject has history of mental illness; 6. Subject currently participates in other drug clinical trials.

**Treatment plan and treatment:**

**Lead-in period:** Based on 100 mg qd of Losartan, if clinic blood pressure can not be achieved to 140/90 mmHg within four weeks, they can use CCBs (There is no limit

on the CCBs type). Patients can be included into the study if the clinic blood pressure reaches the target goal (less than 140/90 mmHg) within four weeks.

**Experimental group:** Losartan & Qianyangyuyin. Losartan 100mg tablet (if necessary combined with CCBs) by mouth, qd for 6 months and Chinese Medicine (Qianyangyuyin granule) 20g by mouth, bid for 6 months.

**Control group:** Losartan & Placebo. Losartan 100mg tablet (if necessary combined with CCBs) by mouth, qd for 6 months and Qianyangyuyin placebo 20g by mouth, bid for 6 months.

**Outcome Measure:**

**Primary Outcome Measure:** albumin-to-creatinine ratio (UACR)

**Secondary Outcome Measures:** Ambulatory blood pressure, Office blood pressure , Traditional Chinese Medicine syndrome scores.

**Safety indicator:** Blood routine, urine routine, urine pregnancy test, liver function (Alanine aminotransferase, Aspartate aminotransferase, Alternative Liquidity Pool, Total bilirubin,  $\gamma$  glutamyltransferase), renal function (Blood Urea Nitrogen, Creatinine, Uric acid), blood lipids (Cholesterol, HDL-C, LDL-C, Triglycerides), fasting blood glucose, glycated hemoglobin, and electrocardiogram.

**Statistical analysis indicator:** The changes of various measures (including urinary ACR, blood pressure, etc.) were compared between the experimental group and the control group at the 6-month follow-up. The unpaired t-test was used to calculate the difference with 95% confidence interval between the two groups.

**Expected progress:** It is expected to complete clinical observation work within 2.5 years after the study starts.